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No. 6110  
May 13, 1881 - June 12, 1889





THE  
SEVENTEENTH ANNUAL REPORT

OF THE  
BOARD OF DIRECTORS

OF THE  
ZOOLOGICAL SOCIETY  
OF PHILADELPHIA.

(INCORPORATED MARCH 21ST, 1859.)

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READ AT THE ANNUAL MEETING OF THE MEMBERS AND LOAN-HOLDERS OF THE SOCIETY.

APRIL 25TH, 1889.

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PHILADELPHIA:  
ALLEN, LANE & SCOTT'S PRINTING HOUSE,  
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1889.

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COLLECTOR'S

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THE  
ZOOLOGICAL SOCIETY OF PHILADELPHIA.  
OFFICE, FAIRMOUNT PARK.

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OFFICERS FOR THE YEAR ENDING APRIL 24TH, 1890.

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**PRESIDENT,**  
FREDERIC GRAFF.

**VICE-PRESIDENTS:**  
GEORGE W. CHILDS, J. VAUGHAN MERRICK.

**SECRETARY,**  
THOMAS HOCKLEY.

**TREASURER,**  
WILLIAM HACKER.

**DIRECTORS:**

WILLIAM H. MERRICK	PROF. H. C. CHAPMAN,
HENRY C. GIBSON,	CHARLES PLATT,
ISAAC J. WISTAR,	GALLOWAY C. MORRIS,
CHARLES W. TROTTER,	HENRY T. COATES,
PROF. JOSEPH LEIDY,	FRANCIS W. LEWIS, M. D.
FRANCIS T. FASSITT,	CHARLES M. LEA.

**ACTUARY,**  
CHARLES L. JEFFERSON.

**SUPERINTENDENT OF THE GARDEN,**  
ARTHUR ERWIN BROWN.

**SOLICITORS:**  
SAMUEL WAGNER, WM. W. MONTGOMERY.



REPORT  
OF THE  
BOARD OF DIRECTORS.

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PHILADELPHIA, April 25th, 1889.

THE Board of Directors of the Zoological Society of Philadelphia, submit to the members and loan-certificate holders, this, their Seventeenth Annual Report of the business and operations of the Society from 1st of March, 1888, to 1st of March, 1889.

MEMBERS.

The number of members on the 1st of March, 1889, was—

Annual members . . . . .	968
Life members . . . . .	1,061
Corresponding members . . . . .	9
Honorary members . . . . .	14
Perpetual members . . . . .	220
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Total members (exclusive of loan-holders)	2,272

Sixty-seven annual members have been added since the last report.

The efforts now being made to secure the loan of the Society are meeting with a reasonable degree of success. It only requires the generous assistance of the loanholders and of the public to obtain the entire loan before the publication of the next annual report.

The following is a report, in detail, of the admissions and receipts for the year:—

Adults (paying twenty-five cents at gates) . . . . .	105,490
Children (paying ten cents at gates) . . . . .	28,896
Members (including Life and Annual Members, loan-holders' annual, and complimentary annual tickets) . . . . .	3,110
Loan-holders' single tickets . . . . .	34,964
Free admissions (charitable institutions, donors' tickets, &c.) . . . . .	2,421
Coupon tickets . . . . .	2,779
Excursion tickets . . . . .	13,290
	<hr/>
	190,950

*Monthly Record of Visitors for 1888-89, with corresponding account for 1887-88.*

MONTH.	1887-88.	1888-89.	COMPARISON.
March . . . . .	7,532	4,461	Decrease . . 3,071
April . . . . .	16,601	14,213	" . . 2,388
May . . . . .	24,293	18,211	" . . 6,082
June . . . . .	20,153	19,746	" . . 407
July . . . . .	23,277	29,353	Increase . . 6,076
August . . . . .	32,133	28,754	Decrease . . 3,379
September . . . . .	37,675	26,528	" . . 11,147
October . . . . .	19,095	13,552	" . . 5,543
November . . . . .	10,436	11,389	Increase . . 953
December . . . . .	5,872	10,821	" . . 4,949
January . . . . .	3,402	8,029	" . . 4,627
February . . . . .	5,577	5,893	" . . 316
	<hr/>		
	206,046	190,950	Decrease . . 15,096

Average daily admissions . . . . .	523
The greatest number of visitors on any one day was on Wednesday, July 4th . . . . .	6,196

*Monthly Record of Receipts from Admission for 1888-89, with corresponding account for 1887-88.*

MONTH.	1887-88.	1888-89.	COMPARISON.
March . . .	\$1,449 21	\$812 54	Decrease . \$636 67
April . . .	2,950 64	2,520 32	" . 430 32
May . . .	4,073 81	3,079 86	" . 993 95
June . . .	3,161 36	3,141 87	" . 19 49
July . . .	3,881 19	4,848 36	Increase . 967 17
August . .	5,290 31	4,265 84	Decrease . 1,024 47
September .	8,005 20	4,274 68	" . 3,730 52
October . .	3,853 41	2,268 36	" . 1,585 05
November .	1,980 69	1,925 98	" . 54 71
December .	1,153 88	1,968 55	Increase . 814 67
January . .	651 03	1,466 34	" . 815 31
February . .	1,083 23	1,088 59	" . 5 36
	\$37,533 96	\$31,661 29	Decrease . \$5,872 67

Average daily receipts from admissions . . . . . \$86 74

The largest amount of receipts at the gates on any one day was on Wednesday, July 4th . . . . \$1,131 67

*Total Receipts on the several days of the week, and their respective averages, for 1888-89.*

RANK.	DAYS.	TOTAL RECEIPTS.	AVERAGE.
1	Sunday . . . . .	\$14,470 15	\$278 27
2	Wednesday . . . . .	4,070 91	78 29
3	Saturday . . . . .	3,030 36	58 28
4	Thursday . . . . .	2,726 55	51 44
5	Tuesday . . . . .	2,631 80	50 61
6	Friday . . . . .	2,470 85	47 51
7	Monday . . . . .	2,260 67	43 47
		\$31,661 29	

The financial condition of the Society is fully shown in the Treasurer's statement, Appendix A; and the report of the General Superintendent, Appendix B, shows the condition of the menagerie and the details attending the operation of the Garden during the year.

Attention is directed to the improvements in the Reptile house, making it one of the most attractive places in the Garden. Similar improvements are urgently needed in other parts of the grounds.

The Board begs to express its thanks to all friends of the Society from whom donations and various kindnesses have been received.

The death of Mr. S. Fisher Corlies, one of the Board of Directors, has occurred since the publication of the last annual report. At a meeting of the Board, held June 14th, 1888, the following minute was ordered to be placed on record: "The Directors of the Zoological Society have heard with great grief of the sudden decease of their friend and colleague, Samuel Fisher Corlies. Stricken down in the midst of his usefulness he leaves a place in our council which cannot be filled, and a memory fragrant with every quality which can endear a man to his associates. His long and most valuable services to this Society, which have continued from its earliest history to the present day, cannot be over-estimated, and his kindly and genial nature, ever displayed towards his fellow-members, bound him to us in the closest ties of friendship.

"The Directors, in recording this inadequate tribute to his memory, would respectfully tender to Mr. Corlies' family an assurance of their profound sympathy in the overwhelming loss which has been sustained by them."

By order of the Board.

THOMAS HOCKLEY,  
*Secretary.*

# INCOME AND EXPENDITURES.

For fiscal year ending March 1st, 1889.

## INCOME.

Members' fees and dues . . . . .	\$2,265 00
Admission receipts . . . . .	31,661 29
Rents at Garden . . . . .	600 00
Sale of Guide-books . . . . .	169 95
Interest discount, &c. . . . .	1,496 26
Sundry receipts . . . . .	616 39
Citizens' relief fund . . . . .	1,040 00
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Transferred to credit of profit and loss . . . . .	\$37,848 89

## EXPENDITURES.

(Exclusive of Permanent Improvements, &c.)

Salaries and wages . . . . .	\$18,053 59
Office expenses . . . . .	134 55
General expenses . . . . .	22,196 01
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Depreciation on permanent improvements . . .	5,905 01
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Balance to debit of profit and loss for the year .	8,440 27
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	\$37,848 89

## CAPITAL.

Receipts and Expenditures for the year ending March 1st, 1889.

Sales of animals . . . . .	\$32 00
Add the following amount charged to profit and loss for depreciation on permanent improvements . . . . .	5,905 01
	\$5,937 01

## EXPENDITURES.

Horticulture and animals as per items in Treasurer's statement (Appendix A) . . . . .	\$5,061 59
Balance (being excess of investments over receipts of capital and provided from profit and loss) . . . . .	875 42
	\$5,937 01

# APPENDIX A.

## TREASURER'S STATEMENT.

From March 1st, 1888, to March 1st, 1889.

DR.	
To Balance March 1st, 1888 . . . . .	\$6,776 99
" Sales of Animals . . . . .	32 00
" Collateral loan . . . . .	15,000 00
" Members' fees and dues . . . . .	\$2,265 00
" Admission receipts . . . . .	31,661 29
" Rents at Garden . . . . .	600 00
" Sundry receipts . . . . .	616 39
" Interest, discount, &c . . . . .	1,496 26
" Sale of Guide Books . . . . .	169 95
" Citizens' relief fund . . . . .	1,040 00
Transferred to credit of profit and loss . . . . .	37,848 89
	\$59,657 88
CR.	
By warrants paid for:—	
Salaries and wages . . . . .	\$18,053 59
Office expenses . . . . .	134 55
Subsistence . . . . .	6,865 80
Advertising . . . . .	2,687 56
Insurance . . . . .	340 25
Fuel and lights . . . . .	1,248 96
Printing . . . . .	313 18
Expressage . . . . .	155 20
Repairs . . . . .	1,967 06
Extra labor and jobbing . . . . .	1,354 39
Hardware and tools . . . . .	287 56
Lumber . . . . .	289 09
Uniforms and equipments . . . . .	220 25
Water-rent . . . . .	150 00
Commissions on collections . . . . .	311 32
Alterations to Reptile house . . . . .	5,409 11
Sundries . . . . .	596 28
Transferred to debit of profit and loss . . . . .	\$40,384 15
Purchase of animals . . . . .	\$4,961 22
Horticulture . . . . .	100 37
Investment account . . . . .	5,100 00
	10,161 59
Collateral loan . . . . .	5,000 00
Balance on hand March 1st, 1889 . . . . .	4,112 14
	\$59,657 88

WILLIAM HACKER, *Treasurer.*

Examined and found correct.

FRANCIS T. FASSITT,

FRANCIS W. LEWIS, M. D.,

*Committee on Audit.*

BALANCE-SHEET.  
Zoological Society, March 1st, 1889.

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Cash	\$4,112 14	Loan	\$319,900 00
Temporary loan	5,000 00	Donations	11,855 74
Investment account	14,100 00	Life memberships	9,835 00
Water supply and drains	11,583 37	Permanent fund	9,000 00
Animal account	47,576 00	Profit and loss	86,887 74
Eagle aviary	2,744 19		
Bear pits	6,966 82		
Monkey house	7,926 80		
Cages	4,252 94		
Fencing	4,804 68		
Vulcanite walks	33,156 96		
Deer parks and enclosures	5,056 20		
Prairie-dog village	890 64		
Gate houses	11,705 21		
Buffalo house	1,494 15		
Horticulture	8,046 50		
Lake	10,447 50		
Walks, roads, and grading	64,924 96		
Houses for sundry animals	6,525 71		
Carnivora house	55,638 48		
Greenhouses	4,622 47		
Barn	3,557 12		
Elephant house	40,672 08		
Seal ponds	4,999 73		
Carriage sheds	3,874 86		
Restaurant	14,341 96		
Settees and chairs	2,124 00		
Photograph stand	691 20		
New aviary	12,525 75		
Deer house	20,624 71		
Reptile house	7,000 00		
Camel house	886 82		
Small mammal house	1,659 00		
Music stand	1,583 65		
Permanent enclosure	9,150 84		
Yard and store-room	2,203 04		
			\$437,478 48

## APPENDIX B.

*To the Board of Directors of the Zoological Society of Philadelphia :*

GENTLEMEN:—I have the honor to submit to you my report for the year ending on the 28th of February, 1889.

On that day the collection consisted of the following number of specimens:—

299 Mammals . . . . .	\$40,887 00
459 Birds . . . . .	5,348 00
154 Reptiles . . . . .	1,072 00
51 Amphibians . . . . .	269 00
—	—
963	\$47,576 00
—	—

showing a considerable increase, both in numbers and value, over the figures of the last few years.

The additions during the year were classified as follows:—

### MAMMALS:—

Presented . . . . .	110
Purchased . . . . .	69
Bred . . . . .	44
—	223

### BIRDS:—

Presented . . . . .	60
Purchased . . . . .	105
Bred . . . . .	7
—	172

## REPTILES:—

Presented . . . . .	123
Purchased . . . . .	65
Bred . . . . .	9
	— 197

## AMPHIBIANS:—

Presented . . . . .	24
Purchased . . . . .	50
Bred . . . . .	14
	— 88
	—
	680

Among the species which were for the first time exhibited in the Garden, the following may be mentioned briefly:—

1. Numerous attempts have been made in past years to procure specimens of the wolverine (*Gulo luscus*), for our collection, but without success, the retiring habits of the animal and its comparatively inaccessible haunts rendering its capture difficult and unusual. In February of last year a large male was finally secured in central Idaho, and hopes were entertained that the species would at last be represented in the Garden; but on arrival, on the 26th of March, the animal was found to be in a dying condition. The parties from whom the specimen was procured have, however, interested themselves in the matter, and it is hoped that before long another attempt may result more successfully.

2. A pair of Venezuela parrakeets (*Bolborhynchus lineolata*) were brought from London and presented to the Society on the 17th of April, by Mr. Frank J. Thompson, of New York. This graceful little parrakeet from the northern part of South America is one of the rarest species in living collections, and it was by a strange coincidence that three more pairs were secured by purchase within a few weeks after the receipt of the first.

3. On the 12th April a pair of Japanese deer (*Cervus sika*) arrived at the Garden. The species is native to Japan and China, and is sufficiently hardy to withstand our winter climate with little shelter. The pair in question have bred since their arrival.

4. The bare-eyed cockatoo (*Licmetis gymnopsis*) from South Australia, a specimen of which was purchased on April 17th.

5. On the 5th of May a paradoxure was purchased, which it has been difficult to identify with certainty. The locality whence it was procured is unknown, and I have somewhat doubtfully assigned it to *Paradoxurus grayi*, a species native to India.

6. A fine male serval (*Felis serval*) was received by purchase on May 5th. A specimen of this species, one of the most interesting of the smaller African cats, was received on approval in 1885, but having died almost immediately, the present specimen may be considered as the first ever really exhibited by the Society.

7. One of the best known of the small European falcons, the kestrel (*Falco alaudarius*), was purchased May 25th.

8. It is doubtful if the dragon-like lizard (*Dracæna guianensis*) has ever been exhibited in a zoological collection previous to the arrival, on May 30th, of one presented by Mr. Frank J. Thompson. The specimen was captured in the valley of the Amazon, and while of interest on account of its rarity, seems to be of such sluggish disposition that no observations worth mentioning have as yet been made upon it.

9. A specimen of the least weasel (*Putorius vulgaris*), inhabiting the whole northern circumpolar region, was presented on the 30th of May by Dr. Horatio C. Wood.

10. On June 7th a remarkably fine pair of brown hyenas (*Hyæna brunnea*) were purchased. This species is native to South Africa, and is of somewhat unusual occurrence in menageries. The opportunity of securing this pair was eagerly welcomed, as the Society was thereby enabled to exhibit, side by side, the three known species of the group.

11. One of the rarer macaws is the brown-fronted macaw (*Ara severa*), a species ranging from Nicaragua to Brazil—one of which was procured by purchase in June. At the present time the aviary contains an unusually fine series of this splendid group of parrots.

12. A pair of Geoffroy's marmosets (*Midas Geoffroyi*) from Panama, purchased on the 4th of July.

13. On the 10th of July a specimen of the royal python (*Python regius*), a small species from western Africa, was also purchased.

14. Among the most valued additions to the collection of reptiles, were five iguanas from the Isle of Pines, West Indies, procured by purchase on the 13th of July. These were at once seen to be different from any previously in the collection, and were subsequently identified by Professor E. D. Cope, as *Cyclura nubila*, Gray. It may be remarked that the habit noticeable among the iguanas, of remaining fixed in one position when the attention is excited, or of "striking attitudes," is specially marked in these animals, and several of them being of large size, they have attracted considerable attention in the large case in the central portion of the new reptile house. They are of aggressive disposition, and cannot be readily handled, as they strike blows of astonishing force with their long tails, and bite with great tenacity any object with which they are disturbed. As with the better-known iguanas, their most suitable food in captivity appears to be bananas, hen's eggs and milk.

15. A male of the blue grosbeak (*Guiraca caerulea*), one of our native birds, purchased July 14th.

16. A violet-necked lory (*Eos riciniata*) from the Moluccas, also purchased.

17. On the 25th of July two specimens of the horned rattlesnake (*Crotalus cerastes*), one of the numerous serpents of this group, found in the Arizonian region, were presented by Dr. J. L. Wortman, of the Army Medical Museum.

18. Two Hutchins' geese (*Bernicla canadensis hutchinsi*) were received from Nebraska on the 7th of August, and

were accompanied by several blue-winged teal (*Querquedula discors*), both of these species being new to the collection.

19. By the kindness of Mr. J. H. Witte, of New York, a green lizard (*Lacerta viridis*) from Italy was added on the 11th of August.

20. On the 20th of August a specimen of Maximilian's toucan (*Pteroglossus wiedi*), of Brazil, was purchased.

21. On the 29th of August a mocking-bird thrush (*Mimocichla rufipes*), from Cuba, was received, in company with a beautiful specimen of the red-breasted troupial (*Amblyrhamphus holosericeus*) of South America. The latter bird was presented by Mr. Frank J. Thompson.

22. An Agassiz tortoise (*Xerobates agassizi*) was received from Arizona, by purchase, on the 31st August. This rare species was especially welcome, as it completed our series of the known forms of North American tortoises.

23. Among the rarest of the parrots which have been comprised in the collection is the short-tailed parrot (*Pionus brachyurus*) from Brazil, which was received on the 1st of September.

24. On the 6th another interesting addition was made to the collection of land turtles—a pair of radiated tortoises (*Testudo radiata*) from Madagascar, having been purchased. It is doubtful if this fine species has ever before been brought to this country.

25. A cuckoo (*Cuculus canorum*), a bird well known in Europe, was also purchased in this month, and was shortly followed by half a dozen hedge-hogs (*Erinaceus europaeus*), equally familiar in their own country, but never before represented in our Garden.

26. Two yellow troupials (*Xanthosomus flavus*), native to Buenos Ayres were also purchased.

27. Several Muhlenberg's turtles (*Chelopus muhlenbergi*), of the eastern United States, were received for the first time, by presentation.

28. A number of East Indian lizards (*Varanus bengalensis*), were purchased on the 28th September.

29. A European golden oriole (*Oriolus galbula*), was also purchased.

30. Two specimens of the Arizona diamond rattlesnake (*Crotalus adamanteus atrox*) were received on the 9th of October, from the neighborhood of Tucson. It is not probable that this species has ever before been exhibited in a living state outside of its native region.

31. On the 11th of October two giant salamanders (*Sieboldia maxima*), from Japan, were purchased, and are the most noteworthy additions ever made to the department of amphibia. It is the largest known member of the class, reaching a length of four feet; one of those in the Garden appears to be nearly full grown, while the other is somewhat smaller. They have been exhibited in a number of foreign collections but with one exception, these are probably all that have, up to the present time, been introduced into this country.

32. The genus *Morelia* represents the *Pythonidæ* in Australia, one member of which, the beautiful carpet snake (*M. spilotes*), was received on the 16th.

33. A small collection of snakes received in October from Georgiana, Florida, was found to contain some species of extraordinary rarity. Among them were the cyclops water snake (*Tropidonotus cyclopeum*), the flat-tailed water snake (*T. compressicaudus*), and Sacken's garter-snake (*Eutænia sackeni*).

34. A specimen of the blue-rumped parrakeet (*Psittinus malaccensis*), from Malacca, was purchased on the 29th of November and added to the fine collection of *Psittacidæ*, which, at present, fully occupies the cages on the east side of the aviary, and is becoming uncomfortably crowded.

35. A monkey presented on the 17th of December, by Dr. G. G. Green, of Woodbury, N. J., proved to be the white-cheeked cebus (*Cebus lunatus*), of Brazil, one of the rarer members of that extensive genus.

36. On the 29th of December, a snake belonging to a little-known species, the so-called horse snake (*Chilomeniscus ephippicus*), was received from Arizona. It is seldom that a more beautiful instance is afforded in nature, of the adaptation of structure to mode of life, than is displayed in the

case of this little snake. The rostral plate, forming the snout, turned up like a plowshare; the body, of nearly uniform thickness and covered with closely applied scales, as smooth as polished ivory; the tail, short and strong, not likely to be caught or broken in passage through the earth; the superior labial plates so greatly inclined backwards that the mouth looks downwards and is protected by the shelf-like projection above, while the eye and nostril are both small and placed far out on the side of the head. The whole external form has been wonderfully moulded to a subterranean mode of life, and, in fact, the speed with which the specimen in the Garden makes its way through the loose sand and loam covering the bottom of its cage, is truly astonishing. The Society is indebted for this interesting specimen, as well as for a number of others from the same region, to the interest of one of its corresponding members, Mr. Herbert Brown, of Tucson, Arizona.

37. A specimen of the nutcracker crow (*Nucifraga caryocatactes*), from northern Europe, was received by purchase on the 1st of January.

38. On the 11th of January three lemurs were purchased, forming a most interesting addition to the collection in the monkey house. They consist of a male and female black lemur (*Lemur macaco*), the latter being of strikingly different appearance from the male, and closely resembling the female figured by Bartlett in Proc: Zool: Society of London, 1862, pl., XLI., as *L. leucomystax*, a form now considered by the best authorities to be the female of *L. macaco*. The third specimen, a male, I have not yet been able to satisfactorily identify. It appears to correspond more closely to *L. anjuanensis* of Geoffroy than with any other described specimen, and as the latter seems to be regarded as identical with *L. brunneus*, Van der Hoev. I have temporarily assigned it to that species, although differing greatly from two of the former which are already in the collection.

39. Two Mexican guans (*Ortalida vetula*) were received from Vera Cruz, on the 16th; and

40. On the 19th, two specimens of the Mexican cardinal (*Cardinalis virginianus coccineus*), from the same locality.

41. On the 23d of January another interesting addition was made to the collection of lemurs in a specimen of the beautiful Javan loris (*Nycticebus javanicus*), received by purchase.

42. On the same day a specimen of the Madagascar boa (*Pelophilus madagascariensis*) from the island of that name.

43. A courlan (*Aramus giganteus*), from South America, was purchased in February. This bird, closely related to the *Rallidae*, has not previously been exhibited in the Garden.

44. On the 20th of February a European green wood-pecker (*Gecinus viridis*), was added by purchase.

Among other additions which are not frequently received by us, were a wedge-tailed eagle (*Aquila audax*), from Australia; a number of thirteen-striped spermophiles (*S. tridecim-lineatus*), presented by Mr. J. W. Worrall, Pratt, Kansas; a female Burchell's zebra (*Equus burchelli*), about a year old, purchased to mate the young male procured the year previously, and a pair of young axis deer (*Cervus axis*). Two young prairie wolves or coyotes (*Canis latrans*), received in August from Nebraska, are of interest from the fact that one of them is almost entirely black, the other being somewhat less so, this condition of melanism appearing to be less common in this species than in the other American form (*C. lupus occidentalis*).

On Christmas day Mr. Adam Forepaugh, proprietor of the circus and menagerie bearing his name, presented to the Society the male elephant "Bolivar." This splendid animal came originally from Ceylon, is now about thirty years old, stands nearly ten feet in height at the shoulder, and weighs nearly ten thousand pounds. It may well be doubted if a finer specimen of his race has ever been included in a zoological collection. As the two females previously owned by the Society have also reached a large size, this addition made it necessary to enlarge the enclosure. This was done without the removal of the animals, the present pen being half again the size of the old one.

The only death worthy of special note was "Topsey," the chimpanzee purchased on the 21st of August, 1882, which died suddenly on the 14th of February, having lived nearly six years and a half in the Garden.

The births during the year were as follows:—

- 1 Rhesus Macaque (*Macacus erythraeus*), India, born 20th April.
- 1 Hybrid between *Macacus cynomolgus* ♂ and *Cercopithecus fuliginosus* ♀, born 27th September.
- 3 Lions (*Felis leo*), Africa.
- 4 Coyotes (*Canis latrans*), North America, born 13th May.
- 4 Muskrats (*Fiber zibethicus*), North America, born 2d June and 8th August.
- 3 Beaver (*Castor fiber canadensis*), North America, born in July.
- 6 Prairie Dogs (*Cynomys ludovicianus*), North America, born in June.
- 2 Bactrian Camels (*Camelus bactrianus*), Asia, born 27th and 30th March.
- 1 Zebu (*Bos indicus*), Asia and Africa, born 5th April.
- 1 Bison (*Bison americanus*), North America, born 10th May.
- 1 Indian Buffalo (*Bubalus buffelus*), India, born 22d October.
- 1 Aoudad (*Ovis tragelaphus*), Africa, born 17th May.
- 1 Indian Antelope (*Antilope cervicapra*), India, born 1st August.
- 2 Wapiti (*Cervus canadensis*), North America, born 24th July and 27th October.
- 2 Fallow Deer (*Cervus dama*), Europe, born 5th and 11th June.
- 1 Hog Deer (*C. porcinus*), India, born 28th April.
- 1 Japanese Deer (*C. sika*), Japan, born 7th June.
- 2 Common Deer (*Cariacus virginianus*), North America, born 18th May and 22d of July.
- 1 Mule Deer (*C. macrotis*), North America, born 30th June.
- 1 Red Kangaroo (*Macropus rufus*), Australia, born 17th September.

- 1 Brush-tailed Kangaroo (*Petrogale pencilata*), Australia, born 10th August.
- 6 Common Opossums (*Didelphys virginiana*), United States, born 23d July.
- 7 Egyptian Geese (*Chenalopex aegyptiaca*), Africa, born 9th June.
- 4 Copperheads (*Ancistrodon contortrix*), United States, born 29th August.
- 4 Slow-worms (*Anguis fragilis*), Europe, born 2d October.
- 3 Spotted Salamanders (*Diemyctylus miniatus*), North America, born 2d October.
- 12 Salamanders (*Salamandra maculosa*), Europe, born 31st December.

As has been stated in previous reports, the condition of the old aviary, latterly used for the accommodation of the collection of reptiles and amphibians, was such that it was altogether unfitted for the purpose, and for some years these important branches of zoology have been almost unrepresented in the Garden. The necessary repairs and alterations were conducted during the summer, and the building was reopened on the 14th of October. In its present condition, it consists of a central square—the old portion—thirty-six feet on each face, with two wings, on the east and west sides, each twenty-eight feet deep by thirty-two wide, with semicircular ends—the full length of the building being ninety-two feet. The effect of the interior upon the eye is highly pleasing, the specimens in many of the cases being kept upon the natural earth, among growing shrubs and plants, while the experience of the past winter has shown the arrangement of the building to be well adapted to the end in view. As was anticipated, this building forms one of the chief attractions of the Garden.

No other work, beyond ordinary repairs, has been done during the year.

It is proper to call attention to the fact that at no previous time has the collection been so well able to fill its part among the educational institutions of Philadelphia as at present—

the specimens contained in it being of sufficient variety to give a comprehensive idea of the four higher classes of vertebrates. Some of the larger groups are exceptionally well represented. The series of monkeys is large, and contains a number of species rarely seen in captivity, as well as six specimens belonging to the little-known group of lemurs, which have been previously referred to. These will all be shortly placed in the vacant chimpanzee cage, where they will be shown to better advantage than in the monkey house, and where it is hoped the black lemurs may be induced to breed. The collection of parrots is also worthy of special attention, and contains nearly fifty species.

Among reptiles, the display of the larger serpents, belonging to the *Pythonidæ* and *Boidæ* is noteworthy, and arrangements have been made which, during the coming summer, will, it is hoped, result in an extensive collection of North American forms in all branches of this class, as well as among amphibians.

Aside from needed improvements in the lighting and ventilation of some of the older buildings and extensions which are required in some cases, to meet the increasing needs of the collection, considerable alteration is greatly to be desired to many of the out-door enclosures. It should be an object constantly in view in every zoological garden, to represent in the surroundings of each animal, the conditions of its life under nature, with as much faithfulness as is possible under the limitations of captivity—not alone for the benefit in health conferred upon the animal itself, but also for that resulting from the improved means of study offered to the observer. Somewhat of this has already been accomplished in our garden, notably and with success in the cases for tree-climbing snakes in the new reptile house. But improvements of this nature, to be worthily done, involve a considerable expenditure of money, and it is to be regretted that the limited income of the last few years has provided for little beyond the actual and urgent necessities of maintenance. Wherever repairs are needed, however, this object is aimed at, and with time may be measurably realized throughout the Garden.

The material afforded by deaths among the collection has reached a widely extending field of usefulness. Those specimens valuable for purposes of comparative anatomy or taxonomy have been distributed among institutions and specialists in those branches, while many, less valuable, have been made useful to students, in dissection and for anatomical preparations. In some cases they have been exchanged for living specimens.

To our Society, which was almost the pioneer in this country, it should be gratifying to note the widely increased appreciation of such collections in their proper sphere, as means to the prosecution of scientific work, as is indicated above, and as adjuncts to the development of art, as is shown by the growing use of the Garden by artists and art students. In the spread of this tendency, which has already developed into projects, now more or less matured, for the establishment of zoological gardens in several of the larger cities in the East, it can hardly be doubted that our own institution has played an important part.

Respectfully,

ARTHUR ERWIN BROWN,  
*General Superintendent.*

ZOOLOGICAL GARDEN, March 1st, 1889.





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